UNIVERSAL MINIMAL DYNAMICAL SYSTEMS AND RAMSEY THEORY

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Abstract. Each topological group $G$ admits a unique universal minimal dynamical system $(M(G), G)$. For a locally compact non-compact group this is a non-metrizable system with a rich structure, on which $G$ acts effectively. However there are topological groups for which $M(G)$ is the trivial one point system (groups with the fixed point on compacta property), as well as topological groups $G$ for which $M(G)$ is metrizable and the action of $G$ on $M(G)$ can be described explicitly. I will survey this new theory as developed by Kechris-Pestov-Todorcevic, Uspeski, and Glasner-Weiss and show some connections with combinatorial Ramsey theory and the phenomenon of concentration of mass.